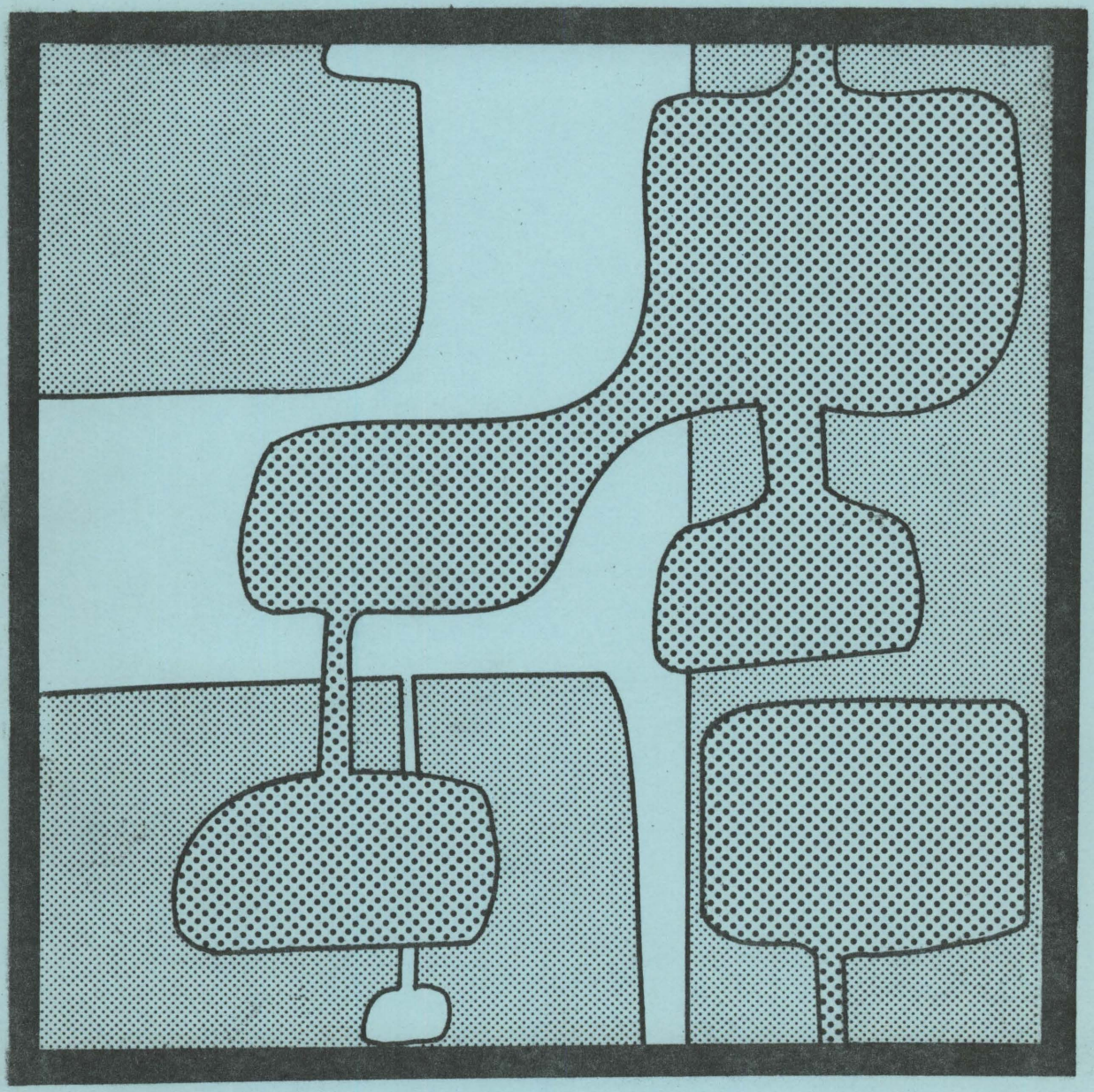
ESO No. 739
Revised 8/1/80

USER'S MANUAL FOR THE RURAL OHIO ECONOMIC GROWTH IMPACT MODEL

By George W. Morse and John David Gerard



Department of Agricultural Economics and Rural Sociology
The Ohio Agricultural Research and Development Center
The Ohio State University

USER'S MANUAL
FOR
THE RURAL OHIO ECONOMIC GROWTH
IMPACT MODEL

by

George Morse*
John David Gerard*

*Department of Agricultural Economics and Rural Sociology, The Ohio Agricultural Research and Development Center, The Ohio State University. Economics and Sociology Occasional Paper No. 739, June 1980.

Table of Contents

Tables

Worksheet

USER'S MANUAL FOR THE

OHIO ECONOMIC GROWTH IMPACT MODEL*

Introduction

The Ohio Economic Growth Impact Analysis can be used to study the economic benefits and costs of a change in employment in a community. The analysis provides estimates of the increase in annual income, as a result of the new firm, received by three groups: (1) employees living in the city or village, (2) employees living in the balance of the county, and (3) local merchants and their employees.

The effect on taxpayers is also examined by estimating changes in tax revenues, user fee revenues, and public service expenditures for the new plant or additional population. These changes are calculated for the three units of local government: (1) the city or village, (2) the county, and (3) the school district.

The model can estimate the benefits and costs of a number of growth related issues. Examples of these issues are tax abatement, annexation, investments in industrial parks, extension of water and sewer lines, and promotional campaigns.

In all cases, the change in revenues and expenditures reflects those due to the new in-migrant residents working at the new plant. The expenditure estimates should include any additional outlays necessary in order to maintain the quality of service at

*By George Morse and John David Gerard, Resource Economist and Technical Assistant, Department of Agricultural Economics and Rural Sociology, The Ohio Agricultural Research and Development Center and The Ohio State University, 1980.

the pre-growth level. For example, if growth adds new students to tne schools, the expenditures for maintaining the quality of education must be estimated. In some cases the school system may not actually increase expenditures at this rate. To judge the desirability of the proposed policies by their impacts on school budgets, the quality of the service delivered must remain the same with or without the development. Similarly, some environmental changes can be reflected in the service budgets for water and sewer services.

The purpose of this publication is to describe how the Ohio Economic Growth Impact model can be used to examine local growth policies. It is a guide for professionals assisting communities with impact analyses, such as Cooperative Extension Service community development agents, regional planning agency and economic development consultants. This paper provides instructions for collecting the data and for reading the computer printouts.

Related Publications

To understand the potentials and limitations of the model, users should review several related publications before collecting data. These related papers describe the model, the ways it can assist developers and educators, and the procedural suggestions for using it.

"Economic Growth Impacts: A Technical Description of an Ohio Model for Rural Communities," Department of Agricultural Economics and Rural Sociology, the Ohio Agricultural Research and Development Center and the Ohio State University, ESO 741, 1980. (By George Morse and John David Gerard)

This paper gives the model's conceptual description and its estimation procedures.

"Use of Growth Impact Models in Economically Depressed Regions," Department of Agricultural Economics and Rural Sociology, the Ohio State University, ESO 742, 1980. (By George Morse)

This paper provides an overview of the model and how it can be used to examine local governmental actions to encourage growth.

"Extension Program Suggestions for the Ohio Economic Growth Impact Model," Department of Agricultural Economics and Rural Sociology, the Ohio State University, ES 743, 1980. (By George Morse)

This paper suggests how the model can be used in extension's educational programs.

Form 1 vs Form 2

This manual provides instructions for completing both User Data Form 1 (Appendix A) and User Data Form 2 (Appendix B). Persons interested in the impacts of the typical firm in a given industry can fill out User Form 1 (Appendix A), which requires only eleven pieces of information and which allows five optional responses. Ohio State University economists then complete Form 2, using data published by the federal government and the state.

Most users will find Form 1 preferable to Form 2 when they are doing their first impact study. This fact is simply because Form 1 is much shorter than Form 2. In most cases the results from Form 1 and Form 2 will be very similar. Form 2 does allow the user to adjust additional variables. For example, in Form 2 the user can set the "family size per employee" and "students per employee." If Form 1 is used, these two variables are set by the

OSU resource economists doing the analysis. In both cases, the user is given a computer printout with the value used. Consequently, users that start with Form 1 can easily switch to Form 2 later in their analysis.

If possible, persons requesting an analysis should use Form 2 rather than Form 1. The results from Form 2 are much more reliable. In addition, a clearer understanding of the impacts is gained by examining each input variable individually.

Instructions for Form 1

On Form 1, data are requested on 16 items, only 11 of which are required. Information is needed on the location of the proposed plant, the property tax rates, the tax reduction factors, and several school variables. All of these can be obtained from local officials.

If a specific firm is being considered, then data are needed on the number of new jobs, wages, value of plant and equipment. These data are optional and national or regional averages will be used if this firm information is not available. Specific instructions are given on Form 1 in Appendix A.

Instructions for Form 2

Sources of Local Data

No one person can usually provide all the local data needed. The User Data Form 2 is divided into seven sections by source of data.

Section I: Firm and Employment Data

This information might be provided by the prospective firm, the local chamber of commerce, the local community improvement corporation, local bankers, or utility companies.

Section II: Tax Data

The county auditor can supply all the data requested in this section.

Section III: County Data

This information may be available from the county auditor, county treasurer, or clerk of the board of county commissioners.

Section IV: School District Data

The local school superintendent should either have this information or be able to direct you to someone who does.

Section V: Municipal Data

Some possible sources for data include the mayor's office, the service-safety director, and the city auditor or the village treasurer.

Section VI: Other Data

These data are usually supplied by the economists who perform the analysis. The values for each variable in this section will be provided with the results of the analysis. If changes are desired in any of these variables, contact the economists doing the analysis through your area extension agent.

Section VII: Alternative Analysis and Policy Options

If a user is uncertain what value to assign to a variable, he may request low, intermediate, and high estimates be used so that variations in the results may be examined. Likewise, different policies may be looked at by changing specific data items.

Record the following data on a copy of Form 2. This form is shown in Appendix B.

Section I: Firm and Employment Data

Item 1: "Industrial classification"

a: Type of business." Describe the specific products or services provided by the firm. If the expansion of an existing firm is being studied, describe only the products handled in the expansion.

"b: SIC code." See Table 11. Find the Standard Insustrial Code (SIC) group name and number which best describe the firm to be studied and record it in this space.

Item 2: "Location of new firm"

Self explanatory.

Item 3: "Total new jobs created"

Record only the number of new jobs at the new or expanding plant.

Item 4: "Residential location of workers"

These five variables are very important. The reported default values are based on research done in Southeastern Ohio. For more information on this see Ohio Agricultural Research and Development Center Research Bulletin 1108, "Income and Fiscal Impacts of Manufacturing Plants in Southeast Ohio" (Morse and Hushak - 1979).

Table 1

Standard Industrial Classifications
for Major Industry Groups

SIC Code	
...	Agricultural services, forestry, fisheries
07	Agricultural services
...	Mining
12	Bituminous coal and lignite mining
13	Oil and gas extraction
14	Nonmetallic minerals, except fuels
--	Administrative and auxiliary
...	Contract construction
15	General contractors and operative builders
16	Heavy construction contractors
17	Special trade contractors
...	Manufacturing
20	Food and kindred products
21	Tobacco manufactures
22	Textile mill products
23	Apparel and other textile products
24	Lumber and wood products
25	Furniture and fixtures
26	Paper and allied products
27	Printing and publishing
28	Chemicals and allied products
29	Petroleum and coal products
30	Rubber and misc. plastics products
31	Leather and leather products
32	Stone, clay, and glass products
33	Primary metal industries
34	Fabricated metal products
35	Machinery, except electrical
36	Electric and electronic equipment
37	Transportation equipment
38	Instruments and related products
39	Miscellaneous manufacturing industries
--	Administrative and auxiliary
...	Transportation and other public utilities
41	Local and interurban passenger transit
42	Trucking and warehousing
44	Water transportation
45	Transportation by air
46	Pipe lines, except natural gas
47	Transportation services
48	Communication
49	Electric, gas, and sanitary services
--	Administrative and auxiliary
...	Wholesale Trade

50 Wholesale trade-durable goods
51 Wholesale trade-nondurable goods
-- Administrative and auxiliary
... Retail trade
52 Building materials & garden supplies
53 General merchandise stores
54 Food stores
55 Automotive dealers & service stations
56 Apparel and accessory stores
57 Furniture and home furnishings stores
58 Eating and drinking places
59 Miscellaneous retail
-- Administrative and auxiliary
... Finance, insurance, and real estate
60 Banking
61 Credit agencies other than banks
62 Security commodity brokers & services
63 Insurance carriers
64 Insurance agents, brokers & service
65 Real estate
66 Combined real estate, insurance, etc.
67 Holding and other investment offices
-- Administrative and auxiliary
... Services
70 Hotels and other lodging places
72 Personal services
73 Business services
75 Auto repair, services, and garages
76 Miscellaneous repair services
78 Motion pictures
79 Amusement & recreation services
80 Health services
81 Legal services
82 Educational services
83 Social services
86 Membership organizations
89 Miscellaneous services
-- Administrative and auxiliary
... Nonclassifiable establishments

The number of in-migrants partially depends on the availability of local labor with the needed skills. Frequently, determining the percentage of workers residing in the city, in the county, or outside the county simply requires an educated guess. The prospective firm may have examined the local labor market and developed estimates of where its employees

would come from since labor availability is a key factor in locating a new plant. In some cases they may be willing to share this with local officials.

Item 5: "Average annual wages (before deductions)"

This is the average annual wages paid to employees, before payroll deductions. In-migrants frequently are in management positions and thus many have higher wages. It is assumed that local employees and commuters have similar wages. The annual rate of change in wages is difficult to estimate. Table 2, which provides the averages of some industries over the past 13 years, suggests some possibilities.

Item 6: "New plant's market value"

The market value of improvements to the plant site includes the value of any new building or additions of a permanent nature to existing buildings. If the firm being studied is moving into an existing building, only record any increases in value due to remodeling.

Table 2

Annual Rate of Increase
in Wages by Industry*

Industry	Annual Percent Increase 1972-1977	Annual Percent Increase 1964-1977
Mining	11.2	7.6
Construction	6.6	6.4
Manufacturing	9.5	6.3
Transportation & Utilities	9.9	6.8
Wholesale & Retail Trade	8.5	5.1
Finance, Insurance and Real Estate	6.9	5.3
Services	9.2	6.4

*Current Dollars

Source: U. S. Statistics Abstract Table No. 686.

Tangible personal property includes machinery, equipment, and inventories. If a firm buys out an existing firm, be careful to only record increases in the value due to increases in the amount of tangible personal property.

Item 7: "Percent of workers' incomes spent in the municipality and county"

The larger these values are, the greater will be the impacts on the service sector (retail and wholesale trade and professional services). Previous research has found relatively low levels of local and county spending.

Appendix C of this manual has a questionnaire which can be used to more accurately determine these values in your community.

Item 8: "Family size per employee"

In Ohio in 1970 there were approximately 3.2 residents per household. The number of in-migrant employees times 3.2 should estimate the number of new residents. If an estimate of the ratio for a particular type of industry and/or location is available, then that figure should be used.

Item 9: "Students per employee"

In Ohio in 1976 there were 73 students in elementary and secondary schools for every 100 households. Assuming the firm being studied did not employ more tnan one person per in-migrant household,

multiplying the number of in-migrant employees times 0.73 should provide an initial estimate of the increase in enrollment due to the new plant. If the in-migrants are expected to be older or younger than average, the estimates may need to be reduced somewhat.

Item 10: "Ratio of home values to income"

This estimate is used to derive the value of new homes or housing improvements by workers. The default value of 2 is based on discussions with bankers and others familiar with housing values.

Check with local bankers to determine the ratio in your area.

Item 11: "Ratio of net income to gross income"

Since data on wages are usually for gross income, it is necessary to subtract the payroll deductions from the wage income. Table 3 shows the values for a family of 4 persons. These estimates are based on the 1979 laws for the following taxes: (1) federal income 2) state income, (3) state sales, and (4) social security. The second column, marked average ratio, shows the ratio of net income to gross income. For example, an employee who earns $15,000 and who has 4 dependents has 16 percent of his gross income deducted from his earnings; this fact is shown as .84 in column 2.

The third column shows the ratio of the additional

income which the employee receives as take-home pay. For example, an employee who increases his annual earnings from $14,000 to $15,000 will pay 27 percent of the additional thousand dollars; this marginal rate of taxation is shown by the .73 in column 3.

To estimate the amount of additional income available in the community, it is best to use the marginal rate shown in Table 3.

Item 12: "Persons providing information"

Experience shows it is wise to record the name, title, address, and phone number of each person providing information. If further detail is needed on any item, this facilitates the follow-up work. Results may also be more creditable when this is available.

Table 3

Ratio of Net Income to Gross Income

Gross Annual Income $(000)	Average Ratio*	Marginal Ratio**
$ 5	.93	n.a.
6	.93	.92
7	.93	.93
8	.91	.84
9	.90	.78
10	.89	.76
11	.87	.78
12	.86	.75
13	.86	.76
14	.85	.73
15	.84	.73
16	.83	.73
17	.82	.68
18	.81	.68
19	.80	.62
20	.80	.66

*Ratio of net income to gross income for a Ohio family of 4 in 1979.

**Ratio of additional net incomve to additional gross income for an Ohio family of 4 in 1979.

Instructions for Section II: Tax Data

Item 1: "Property tax millage rates and reduction factors"

Inside millage refers to the property tax rates which do not need a vote of the people and may not be removed by such a vote. Inside millage for all purposes may not exceed, but usually equals, ten mills. A one mill tax rate is one dollar of tax per one thousand dollars of assessed value for the property. Outside millage refers to mills of property tax which must receive a majority of the votes of the electors in the area to be collected and may be removed by a similar vote. Outside millage for any purpose is limited only to the extent that the voters may decide. All property tax millage is either inside or outside.

For the municipality and county, report the total inside and outside millages for each separately. For the school district, report the inside and outside millages for operating purposes only.

Tax reduction factors are percentages by which real property tax liabilities are reduced to prevent a governmental unit's outside property tax revenues from increasing due to inflation. As might be expected, the factors increase each time property values are updated or appraised. Note that tax reduction factors are always less than 1.

Obtain the particular tax reduction factors for the county, school district, and municipality which are

provided to the county auditor by the Ohio Department of Tax Equalization and insert the value in the allotted space.

Item 2: "Year of last appraisal or update"

Self explanatory.

Item 3: "Expected annual rate of change in property values"

This variable might be used on local trends in property values, adjusting for any recent changes in conditions.

Item 4: "School district tax base"

There are basically two types of locally-taxed property, real and tangible personal. Real property primarily consists of land and buildings. Tangible personal property is made up of machinery, equipment, inventories, furniture, and fixtures.

Obtain the values for real property (including real public utility property), tangible personal property (excluding any public utility property), and tangible personal public utility property for the school district and record them in the appropriate spaces.

The tax year from which these valuations come is necessary to make adjustment for a declining assessment ratio on tangible personal property. Record it also.

Item 5: "Persons providing information"

Experience shows it is wise to record tne name, title, address, and phone number of each person providing information. If further detail is needed on any item,

this facilitates the follow-up work.

Instructions for Section III: County Data

Item 1: "County permissive sales tax rate"

Self explanatory.

Item 2: "State and federal aid per capita"

This includes any new aid related to population growth due to the plant. In Ohio only two forms of aid to counties change when growth occurs: (1) motor vehicle license fees and (2) federal revenue sharing.

Note that revenue sharing is not a consistently funded program. It increases dramatically during a recession and parts of it may be eliminated in the near future. Due to this uncertainty, it can be omitted entirely if the user wishes.

While motor vehicle license fees increase due to population growth, the impacts are small. Consequently, some users may wish to omit this variable also.

Item 3: "Miscellaneous county revenue per capita"

This includes any changes in revenue from licenses, permits, fees, fines and penalties. It excludes revenues from property taxes, sales taxes, state and federal aid, or county owned utilities.

Include only those items likely to change proportionally with the population. Total the items included and divide by the county's population.

Item 4: "County operating expenses per capita"

This should include the total personal service expenses and the total operation and maintenance expenses for the county divided by the county's population.

Estimate the annual rate of change in the county's operating expenditures based upon recent trends.

Item 5: "Total annual capital costs"

Counties may wish to make capital investments as inducements for a firm. In studying the impacts of a particular firm, the same types of inducements will seldom be offered by both a county and a municipality. It is possible to compute the impacts separately, however. The initial or "base" analysis will be done without these investments by either the city or county. Later "alternative" analyses will include them by one unit and not the other.

See Worksheet 1. In column one, list the total construction cost of each improvement if built now. In column two, put the county's share of the cost; i.e., that part not covered by federal grants, other grants of government, or special property tax assessments on the private developer. In columns three and four, record the bond's expected interest rates and the number of years over which the debt is amortized. In column five, record the annual capital cost for each item using the procedure in Part II of Worksheet 1.

Worksheet 1: Capital Costs to County

Part I: Information

Item	Total Cost	County's Share of Cost	Interest Rate	Years Needed to Amortize	Annual Total
Water lines					
Sewer lines					
Speculative bldg.					
Industrial park					
Access road					
Other					

Part II: Procedure

The annual capital costs are found by this procedure for each item:

a Total construction costs $_____

b. County's share of costs $_____

c Amortization factor (from Table 4) $_____

d. Annual capital cost = axbxc = $_____

If the individual projects are amortized over different lengths of time, the annual costs may change over time. On Form 2 there is a space for the total annual capital costs. For example, if the water lines cost $600,000 with 1/6 paid by the county, at 9 percent interest over 25 years, this yields an annual capital cost of $10,180.

Item 6: "Persons providing information"

Experience shows it is wise to record the name, title, address, and phone number of each person providing information. If further detail is needed on any item, this facilitates the follow-up work.

Instructions for Section IV: School District Data

Item 1: "Enrollment"

Current average daily enrollment is simply the average number of students who attend school in the district being examined.

The expected annual rate of change in enrollment refers to change expected to occur without consideration of the new plant. One method of estimating this value is to look at the rate of change over the past 5 to 10 years and adjust that rate (up or down) to account for changes in local factors which might affect the rate.

The increase in enrollment due to the new plant is an important variable, but is also difficult to estimate. Consequently, it is suggested that three estimates be provided: low, intermediate, and high.

Item 2: "Total state basic aid in year before study"

Report the amount of state basic aid the school district received last year. This figure may be obtained by contacting the local superintendent of schools and requesting the amount of state basic aid reported on form SF-12 last year.

Item 3: "Equalized millage in year before study"

This figure is also on form SF-12 and may be obtained from the local superintendent of schools.

Item 4: "Annual rate of change in state support"

This is simply the percentage by which the state will increase subsidies to local school districts each year. The default value of 7% reflects the tendency of the General Assembly to increase aid in recent years.

Item 5: "Total current transportation aid"

This is explained in Financial Report of Ohio Schools or is available from local school officials.

Item 6: "Miscellaneous revenues per pupil"

This excludes revenues from property taxes and state aid. It includes revenues from the sale of lunches, tuition from other districts, rental of school property, sale of workbooks and supplies, gifts, etc.

Item 7: "School operating expenditures per pupil"

Current operating expenditures per pupil include all of the salaries for administrators, instructors, and auxiliary personnel. It also includes supplies and maintenance expenses.

This estimation procedure assumes the schools currently have no excess capacity and will need to add teachers in the same ratios as currently exists. If this is not the case, an indepth analysis is required.

Estimate the expected annual rate of growth in expenditures per pupil by examining recent trends.

Item 8: "Additional capital costs"

A rule of thumb which might be helpful is that one additional classroom and teacher are needed for each 25 students. But since new students are likely to be distributed over many grades, it is more likely that class size will increase slightly rather than classrooms being added. Obviously this depends on the size of the enrollment increase and the degree of excess capacity.

Assuming construction costs of $40 per square foot and a classroom of 300 square feet, this yields a total of $12,000 per classroom.

The annual cost per classroom would be the total cost times an amortization factor from Table 4. Pick a factor based on the term of the bond and the interest rate. For example, at 9 percent for 30 years the factor is .097333. So the annual cost of three additional classrooms would be:

Annual Cost of 3 New Classrooms = $12,000 X 3 X .097333 = $3,504

Table 4

Amortization Factors

Interest Rate	---Years to Amortize Loan--- 10	15	20	25	30
6	0.135870	0.102965	0.087184	0.078229	0.072648
7	0.142369	0.109794	0.094393	0.085807	0.080587
8	0.149031	0.116836	0.101854	0.093677	0.088826
9	0.155812	0.124069	0.109553	0.101802	0.097333
10	0.162734	0.131475	0.117454	0.110169	0.106078
12	0.176991	0.146821	0.133887	0.127502	0.124146
14	0.19177	0.162813	0.150990	0.145497	0.14279

Item 9: "Persons providing information"

Experience shows it is wise to record the name, title, address, and phone number of each person providing information. If further detail is needed on any item, this facilitates the follow-up work.

Instructions for Section V: Municipal Data

Item 1: "Municipal population"

Series P-25 of Current Population Reports, issued by the U.S. Census Bureau, provide estimates of the population of all cities and villages more recent than the last Census. In 1979 the most recent estimates available were for 1976. These reports may be available at a local library or planning commission office or from an area extension agent in community resource development at the nearest area office of the Ohio Cooperative Extension Service.

The expected annual rate of population growth might be about the same as the change from 1970 to 1975. If so, this data is available in the above source also.

Item 2: "Municipal income tax"

a. Rate

The municipal income tax rate is usually available from the mayor's office.

b. Revenue from the firm

Municipal income tax revenue from the firm being studied can be very difficult to estimate. Since it is a

percentage of their profits, fairly reliable estimates of the firm's future profits are needed. If the firm does not have profit forecasts, a rough estimate can be made using the market value of the firm's building(s) and tangible property. A reasonable return on these investments might be 10%. Consequently, an estimate of the income tax revenue from the firm may be made by multiplying the market value of their property times .1 times the municipal income tax rate.

A second problem is that a company which operates in more than one city with an income tax usually has the option of paying its tax in each city or all in one city. This means a city might receive income tax revenues on a company's locally earned profit, total profit, or neither. Obviously this cannot be predicted. For this reason, the user may wish to estimate revenues conservatively and estimate no income tax revenues from the firm.

Item 3: "Years of tax abatement"

Ohio law allows communities to give tax abatements for up to 15 years on new construction in "Community Reinvestment Areas." If you wish to explore the impacts on local taxes and expenditures of this option, indicate the length of the proposed abatement.

Item 4: "State and federal aid per capita"

Only two forms of aid change when growth occurs locally: (1) motor vehicle license fees and (2) federal

revenue sharing.

Note that revenue sharing is not a consistently funded program. It increases dramatically during a recession and parts of it may be eliminated in the near future. Due to this uncertainty, it can be omitted entirely if the user wishes.

While motor vehicle license fees increase due to population growth, the impacts are small. Consequently, some users may wish to omit this variable also.

Item 5: "Miscellaneous revenue per capita"

This includes revenues from licenses, permits, fees, fines and penalties. It excludes revenues from the property tax, income tax, state and local aids, and municipally owned utilities.

Include only those items likely to change proportionally with the population. Total the items included and divide by the city's population.

Item 6: "Current annual operation cost per person of municipal services"

This should include the variable costs for each service. These are listed under "Personal Services" and "Other Operation and Maintenance" in the section "Municipal Disbursements by Program" in the municipality's "Report of Receipts and Expenditures" (Form 162). This information is available from the village treasurer or city auditor. Data that are one year older are published in the state auditor's annual Financial Report of Ohio Cities. Each service should be

divided by the city's population.

Some services may be in "excess capacity," which allows new residents to be served with minimal additional costs. If this is the case, this procedure will overestimate the new costs due to growth. Note this situation on Form 2 for later adjustments.

For a review of the alternative estimation procedures, see the technical description of the model in Morse and Hushak-1980 and the procedures outlined by Burchell and Listokin.

Item 7: "Capital investments by municipality"

Sometimes communities make capital investments in order to attract new firms or to encourage the expansion of existing firms.

The initial or "base" analysis will be done without these investments. Later, "alternative" analyses will include them.

Worksheet 2 for the municipality capital costs is identical to Worksheet 1 for the county.

Worksheet 2: Capital Costs to Municipality

Part I: Information

Item	Total Cost	Municipality's Share of Cost	Interest Rate	Years Needed to Amortize	Annual Total
Water lines					
Sewer Lines					
Speculative bldg.					
Industrial park					
Access road					
Other					

Part II: Procedure

The annual capital costs are found by this procedure for each item:

a. Total construction costs $_____

b. Municipality's share of costs $_____

c. Amortization factor (from Table 4) $_____

d. Annual capital cost = axbxc = $_____

Item 8: "Persons providing information"

Experience shows it is wise to record the name, title, address, and phone number of each person providing information. If further detail is needed on any item, this facilitates the follow-up work.

Section VI: Other Data

Data provided by economists working with this analysis are:

(1) the length of analysis,

(2) the rate of discount of future benefits and costs,

(3) the expected rate of inflation,

(4) the ratio of value added to sales in the service sector,

(5) the proportion of new housing outside the community reinvestment area (if one will exist),

(6) income leakage factors,

(7) rate of depreciation, and

(8) the cumulative probability of plant failure.

This discount rate and length of analysis are varied depending on the degree of risk and uncertainty involved in the estimates. However, the same rate is used for all alternative analyses as the base run for a given problem.

The data used for these variables are reported in the initial analysis. If the user wishes to alter any item, contact the authors.

Section VII: Alternative Analyses and Policy Options

Users who have completed Sections I to IV in Form 2 will recognize that growth impact estimates require: (1) educated guesses on

several items and (2) an exploration of several local policy options. The analysis has been computerized so that it allows the user to explore the way the results change if different estimates are used for a few of the more difficult variables and to also look at alternative policies.

The base analysis refers to the initial set of results calculated. It uses intermediate values for estimates of in-migrants, new students, new teachers, and local spending. It also assumes no tax abatement or other inducements are given to the firm.

Alternative analyses allow the user to vary the value of some inputs or policy items. Only one major data item should be changed at a time, however. This allows the user to determine the impact of a specific variable or policy change.

Key factors which may merit alternative estimates are:

Section I

Item	Title
4	Location of Workers
8	Percentage of Workers' Income Spent in the Municipality

Section III

Item	Title
4	County Costs Per Capita

Section IV

Item	Title
1c	Enrollments Due to Plant

Section V

Item	Title
8	Additional Annual Operations Costs for Municipal Government

Policy options that merit attention are:

Section III

Item	Title
5	Capital Investments

Section V

Item	Title
3b	Tax Abatement Length
9	Capital Investments

Use the Data Code Sheet to record data for the base analysis and for alternative analyses. When doing alternative analyses look through all of the data items since sometimes changes in one item require related changes. For example, if you change the percentage of workers in-migrating to the city (Item 1-4c), changes may also be needed in capital investments (Items III-5, IV-8, and V-7).

Reading the Computer Printouts

This section describes the results which are available when the computer program is used and how the print-outs should be read.

Detailed Annual Results:

Table 5 shows detailed public sector results of a new machine tool accessory manufacturing firm. For the city, estimates are given for increased real and tangible personal property tax revenues from the new plant and new homes. Income tax revenues are included for cities which collect it. State and federal aids are also reported. However, only motor vehicle license fee receipts

Table 5

BENEFITS, COSTS AND NET GAINS FROM NEW JOBS

IN COMMUNITY OF ATHENS
IN A MACHINE ACCE FIRM
EMPLOYING 42 ADDITIONAL WORKERS

	YEAR 1
PRIVATE SECTOR BENEFITS	
NEW INCOME, EMPLOYEES IN CITY	137973.
NEW INCOME, IN-MIGRANTS TO CITY	86360.
NEW INCOME, EMPLOYEES IN COUNTY	37682.
NEW INCOME, IN-MIGRANTS TO COUNTY	86360.
NEW INCOME, SERVICE SECTOR	27244.
CITY GOVERNMENT	
ADDITIONAL REVENUES	
PROPERTY TAXES, NEW PLANT	0.
PROPERTY TAXES, NEW HOMES	0.
PROPERTY TAXES, ADDITIONAL TANGIBLE	1024.
INCOME TAX FROM WAGES	5555.
INCOME TAX FROM FIRM	0.
STATE AND FEDERAL AID	454.
MISC TAXES, NEW RESIDENTS	119.
TOTAL	7452.
ADDITIONAL EXPENDITURES	
POLICE	250.
FIRE	221.
WATER	0.
SEWER	0.
STREETS	77.
OTHER	72.
CAPITAL EXPENSES	0.
TOTAL	620.
NET REVENUES	6832.
COUNTY GOVERNMENT	
ADDITIONAL REVENUES	
PROPERTY TAXES, NEW PLANT	0.
PROPERTY TAXES, NEW HOMES	0.
PROPERTY TAXES, ADDITIONAL TANGIBLE	2796.
SALES TAX	0.
STATE AND FEDERAL AID	734.
MISC TAXES, NEW RESIDENTS	154.
TOTAL	3683.
ADDITIONAL EXPENDITURES	
CAPITAL EXPENSES	0.
SERVICES, NEW RESIDENTS	731.
TOTAL	731.
NET REVENUES	2953.
SCHOOL DISTRICT	
ADDITIONAL REVENUES	
PROPERTY TAXES, NEW PLANT	0.
PROPERTY TAXES, NEW HOMES	0.
PROPERTY TAXES, ADDITIONAL TANGIBLE	14568.
STATE AID	0.
MISC REVENUES	243.
TOTAL	14811.
ADDITIONAL EXPENDITURES	
OPERATING EXPENSES, NEW STUDENTS	4016.
CAPITAL EXPENSES	0.
TOTAL	4016.
NET REVENUES	10795.

from the state and revenue sharing from the federal government change with growth.

Detailed estimates are reported for seven categories of municipal expenditures: police, fire, water, sewer, street, other, and capital expenses. The capital expenses are reported on an annual basis by amortizing one-time outlays over the life of the item at the market interest rate.

The city's net revenue shown for year 1 in this example is $6832. Nearly the same revenue sources are reported for the county as for the city. The major differences are that county governments may levy a 1 percent sales tax and may not levy any income tax. Less detail is reported for expenditures by the county.

The school district revenues likely to change with growth include only property tax revenues and state aid. Additional expenditures are broken down into two categories: operating and capital expenses.

Results similar to Table 5 are reported for years 1, 5, and 10. If the user wishes additional information, these results can be obtained for each year.

Up to twenty years can be considered by the model. While this is desirable for issues such as 15 year tax abatements or 20 year investment projects, there are dangers in projecting this far into the future. It is not possible to specify relative inflation rates and other variables far into the future. Since there are trade-offs between completeness and risk, the user can specify the number of years to consider.

Private Income Impacts of New Jobs by Year

Increased annual income to employees is shown for each year in Table 6. This example is also for the machine tool accessory manufacturer shown in Table 5. Consequently, the first line in Table 6 is identical to the private sector benefits shown in Table 5. The firm code shown in the top left of Table 6 is the standard industrial code (SIC) number. For example, the firm considered is SIC 3545. The data code is used to identify the output when several situations are being examined. Following the names of the city, school district, and county being studied is the distribution of the residential location of employees. In this example 17 of the employees are assumed to be from the city, 5 are from the balance of the county, 11 are in-migrants, and 8 are commuters from outside the county.

The increased annual income to employees in the new plant and refilling positions vacated by new plant employees in the city in year 1 is $137,973. This is less than these employees' total payroll by the amount which had previously been paid to employees whose jobs were not refilled. For example, if a worker at an existing job was earning $12,500 a year and took an $14,500 job at the plant but his previous job is not refilled, there is only a $2,000 gain in community income.

The annual increases are reported in constant dollars; i.e., the effects of inflation have been removed from the estimates. Whether the annual income will increase or decrease largely depends on how fast the wages of the firm are assumed to increase in relation to the general rate of inflation.

Table 6

PRIVATE INCOME IMPACTS
OF NEW JOBS

FIRM CODE: 3545 INDUSTRY CODE: MACH TL ACCE DATA CODE:
COMMUNITY: ATHENS SCHOOL DISTRICT: ATHENS CITY COUNTY: ATHENS

NUMBER OF JOBS FROM NEW FIRM
TOTAL: 42
FOR CITY: 17 FOR COUNTY: 5 FOR IN-MIGRANTS: 11 FOR COMMUTERS: 8

	INCREASED ANNUAL INCOME TO EMPLOYEES (AFTER PAYROLL DEDUCTIONS) IN: CITY	BALANCE OF COUNTY	SERVICE SECTOR OF CITY
YEAR 1	137973.	37682.	27244.
YEAR 2	140552.	38386.	32306.
YEAR 3	143179.	39104.	36516.
YEAR 4	145856.	39835.	39823.
YEAR 5	148582.	40579.	42171.
YEAR 6	151359.	41338.	43504.
YEAR 7	154188.	42110.	44317.
YEAR 8	157070.	42897.	45146.
YEAR 9	160006.	43699.	45990.
YEAR 10	162997.	44516.	46849.
PRESENT VALUE OVER 10 YEARS AT 10.0% INTEREST	909578.	248414.	238213.

The second column shows the annual increase in incomes to employees in the balance of the county. In this example $37,682 of new income is earned by workers in the balance of the county.

The third column shows the increases in income to the local merchants and their employees. Initial year benefits of $27,244 are lower than the first two columns because it measures new disposal income or about 20% of the additional gross sales. Additional sales are also less than the total increase in wages since nearly 30 to 40 percent of the additional income is frequently spent outside the community.

The present value of the net benefits are shown at the bottom of the table. For example, the city's employees have net gains of $909,578 over the entire 10 years. This is not simply the sum of the 10 years' results. Rather, it sums this column after adjusting each year's net benefits by a factor which reduces its value to the present. Even without any inflation, it is preferable to receive a dollar today than a year from now. So the dollar received today is worth more than the one received a year from now. For example, at a 10 percent discount rate the present value of a dollar received in one year is only 90 cents and in the tenth year is only 39 cents.

Local Government Impacts of New Jobs by Year

Table 7 shows the net effects on the budgets of the city, county, and school district for each year. These are the net benefits; i.e., additional revenues minus additional expenditures as a result of the new plant.

For example, in year 1 the city and county will have net

Table 7

LOCAL GOVERNMENT IMPACTS OF NEW JOBS

FIRM CODE: 3545 INDUSTRY CODE: MACH TL ACCE DATA CODE:
COMMUNITY: ATHENS SCHOOL DISTRICT: ATHENS CITY COUNTY: ATHENS

ANNUAL NET BENEFITS TO:

	CITY	COUNTY	SCHOOL DISTRICT
YEAR 1	6832.	2953.	10795.
YEAR 2	7267.	3734.	15019.
YEAR 3	7507.	4064.	16794.
YEAR 4	7892.	4098.	19805.
YEAR 5	7986.	4572.	19111.
YEAR 6	8074.	4458.	18473.
YEAR 7	8335.	4624.	18713.
YEAR 8	8414.	4510.	18118.
YEAR 9	8501.	4406.	17571.
YEAR 10	8764.	4566.	18055.
PRESENT VALUE OVER 10 YEARS AT 10.0% INTEREST	47950.	25493.	103133.

gains of $6,832 and $2,953, respectively. The school district will have net gains of $10,795 in year 1. Notice that the net gains in Table 7 are identical to the net revenues in Table 5 for year 1. Table 7 provides the net revenues for each of the years being studied.

The net gains to the county and school are large due to the high levels of tangible personal property tax revenue paid by the machine tool accessory manufacturer.

The present value of the net benefits for all 15 years are shown at the bottom of Table 7. For example, the present value of the city's net benefits is $47,950 when 10 years are discounted at 10 percent. This shows what the gains for all ten years are worth today assuming the plant continues operation for the entire period.

The present values of the benefits provide estimates of the capital expenses which a community could undertake to encourage this firm. For this firm, the city could invest up to $47,950 in industrial site improvements without raising the local tax rates. Likewise, the county could invest $25,493 without raising local tax rates. Obviously, a joint effort between the city and county would give them greater leverage.

Data Used in Analysis

A complete list of inputs used in the analysis is presented in Appendix D. This data list allows the user to check the assumptions made about each variable value used in the analysis.

APPENDIX A

USER DATA FORM 1

Users of the Ohio Economic Growth Impact Model who are willing to accept results based on data from secondary sources descriptive of a typical firm in the industry of their choice should use this form. Only eleven types of information (available from three sources) are needed. While this provides an initial view of the impacts, it is not as accurate as using locally derived data.

If the user wishes to provide data based on a particular firm or local estimates of the revenues and/or expenses from growth, User Data Form 2 should be used. The differences between these two forms are discussed in User's Manual for the Rural Ohio Economic Growth Impact Model.

The Ohio Cooperative Extension Service and the Ohio State University will complete an analysis by computer upon request. An OSU resource economist is available to help interpret the results. For more information, contact your county cooperative extension office or area extension center. A list of these offices is provided in the User's Manual.

Instructions

1. Using the attached list, identify the type of firm to be examined. Write this classification name and the accompanying SIC code number in item 1.

2. In item 2 describe the product or service which the firm will manufacture or sell.

3. In item 3, write the name of the municipality, school district, and county in which the firm will be locating.

4. In item 4, write the inside and outside millage rates for operation and tax reduction factor for the county government, school district, and municipal government. The tax reduction factor for each unit of government should be the factor received by the county auditor from the Ohio Department of Tax Equalization. All this information may be obtained from the county auditor's office.

5. In item 5, record the values in the school district of real property (including real public utility property), tangible personal property (excluding any public utility property), and tangible personal public utility property. This information may also be obtained from the county auditor's office.

6. If the county government collects any permissive sales tax, record the rate in item 6. The county auditor's office will have this information also.

7. Check with the office of the school district superintendent or clerk for the information needed for items 7, 8, 9, and 10.

Over.....

Page 2
User Data Form 1

8. If the municipality collects any income tax, record the rate in item 11. The mayor's office will have this information.

9. Completion of the rest of the form is optional if the firm being studied is in manufacturing or wholesale or retail trade. If an item is left blank, national or state average figures will be used. Locally provided estimates generally increase the accuracy of the results.

10. Make certain your name and address are in the space at the top of the form. Mail to:

George Morse
GROW Community Development Project
Jackson Area Extension Center
P. O. Box 32
Jackson, Ohio 45640

SIC code	Major industry group
....	Agricultural services,forestry,fisheries
07	Agricultural services
08	Forestry
09	Fishing, hunting, and trapping
....	Mining
10	Metal mining
12	Bituminous coal and lignite mining
13	Oil and gas extraction
14	Nonmetallic minerals, except fuels
--	Administrative and auxiliary
....	Contract construction
15	General contractors and operative builders
16	Heavy construction contractors
17	Special trade contractors
--	Administrative and auxiliary
....	Manufacturing
20	Food and kindred products
21	Tobacco manufactures
22	Textile mill products
23	Apparel and other textile products
24	Lumber and wood products
25	Furniture and fixtures
26	Paper and allied products
27	Printing and publishing
28	Chemicals and allied products
29	Petroleum and coal products
30	Rubber and misc. plastics products
31	Leather and leather products
32	Stone, clay, and glass products
33	Primary metal industries
34	Fabricated metal products
35	Machinery, except electrical
36	Electric and electronic equipment
37	Transportation equipment
38	Instruments and related products
39	Miscellaneous manufacturing industries
--	Administrative and auxiliary
....	Transportation and other public utilities
41	Local and interurban passenger transit
42	Trucking and warehousing
44	Water transportation
45	Transportation by air
46	Pipe lines, except natural gas
47	Transportation services
48	Communication
49	Electric, gas, and sanitary services
--	Administrative and auxiliary
....	Wholesale trade
50	Wholesale trade-durable goods
51	Wholesale trade-nondurable goods
--	Administrative and auxiliary
....	Retail trade
52	Building materials & garden supplies
53	General merchandise stores
54	Food stores
55	Automotive dealers & service stations
56	Apparel and accessory stores
57	Furniture and home furnishings stores
58	Eating and drinking places
59	Miscellaneous retail
--	Administrative and auxiliary
....	Finance,insurance,and real estate
60	Banking
61	Credit agencies other than banks
62	Security, commodity brokers & services
63	Insurance carriers
64	Insurance agents, brokers & service
65	Real estate
66	Combined real estate, insurance, etc
67	Holding and other investment offices
--	Administrative and auxiliary
....	Services
70	Hotels and other lodging places
72	Personal services
73	Business services
75	Auto repair, services, and garages
76	Miscellaneous repair services
78	Motion pictures
79	Amusement & recreation services
80	Health services
81	Legal services
82	Educational services
83	Social services
84	Museums, botanical, zoological gardens
86	Membership organizations
89	Miscellaneous services
--	Administrative and auxiliary
....	Nonclassifiable establishments

USER DATA FORM 1

Ohio Economic Growth
Impact Model

Analysis requested by: _____

Address: _____

_____

1. Type of firm (see attached list) _____

_____

2. Product(s) handled by firm _____

_____

3. Location of firm:

   a. Municipality _____

   b. School district _____

   c. County _____

4. Property tax millage rates and reduction factors:

	Inside Millage	Outside Millage	Tax Reduction Factor
County	a._____	b._____	c._____
School district	d._____	e._____	f._____
Municipality	g._____	h._____	i._____

5. School district tax base:

   a. Taxable value of all real property in school district _____

   b. Taxable value of all tangible personal property in school district _____

   c. Taxable value of all tangible personal public utility property in school district _____

   d. Tax year to which above valuations apply _____

6. County permissive sales tax rate _____

7. Current average daily enrollment in school district _____

8. Total state basic aid to school district in the year before study _____

9. Equalized millage for school district in year before study _____

10. Total current transportation aid to school district _____

11. Municipal income tax rate _____

12. Expected number of new jobs created by firm _____

Over.....

13. Number of firm's new employees expected to move into municipality _____

14. Average annual take-home pay

    a. For local employees _____
    b. For in-migrant employees _____

15. Market value of any new buildings or additions to existing buildings made by firm _____

16. Market value of the firm's new machinery, equipment, and inventory _____

APPENDIX B

USER DATA FORM 2

Instructions for completing User Data Form 2 may be found in User's Manual for the Rural Ohio Economic Growth Impact Model.

Users who wish to provide data on a particular firm and to make local adjustments in community service estimates should use this form.

To estimate the impacts of a typical firm in an industry on their community, users need to provide eleven types of information using User Data Form 2. This information may be located by contacting only three sources. The results obtained when using Form 2 are based on averages for the typical firm.

Assistance in completing this form and in interpreting the results is available through the Ohio Cooperative Extension Service. In some cases the analysis can be done without charging the local community. For more information contact:

George Morse, Ph.D.
GROW Community Development Project
Jackson Area Extension Center
Jackson, Ohio 45640
(614) 286-2177

- -

Analysis requested by:

_____

Address _____

City _____ Zip _____

Date: _____

SECTION ONE: FIRM AND EMPLOYMENT DATA

1 INDUSTRIAL CLASSIFICATION

A. TYPE OF BUSINESS _____
B. SIC CODE _____

2 LOCATION OF NEW FIRM

A. VILLAGE OR CITY _____
B. SCHOOL DISTRICT _____
C. COUNTY _____

3 NEW JOBS CREATED _____

4 RESIDENTIAL LOCATION OF WORKERS (PERCENT OF TOTAL)

A. MUNICIPAL RESIDENTS _____
B. REST OF COUNTY RESIDENTS _____
C. IN-MIGRANTS TO THE CITY _____
D. IN-MIGRANTS TO THE COUNTY _____
E. COMMUTERS FROM OUTSIDE COUNTY _____

5 AVERAGE ANNUAL WAGES (BEFORE DEDUCTIONS)

A. FOR LOCAL EMPLOYEES _____
B. FOR IN-MIGRANTS _____
C. ANNUAL RATE OF CHANGE _____

6 NEW PLANT'S MARKET VALUE

A. BUILDINGS AND OTHER REAL PROPERTY _____
B. TANGIBLE PERSONAL PROPERTY _____

7 PERCENTAGE OF WORKERS' INCOMES SPENT IN THE MUNICIPALITY AND COUNTY

A. BY MUNICIPAL RESIDENTS IN CITY _____
B. BY MUNICIPAL RESIDENTS IN COUNTY _____
C. BY REST OF COUNTY RESIDENTS IN CITY _____
D. BY REST OF COUNTY RESIDENTS IN COUNTY _____
E. BY COMMUTERS IN CITY _____
F. BY COMMUTERS IN COUNTY _____

8 FAMILY SIZE PER EMPLOYEE _____

9 STUDENTS PER EMPLOYEE _____

10 RATIO OF HOME VALUES TO INCOME _____

11 RATIO OF NET INCOME TO GROSS INCOME _____

12 PERSON(S) PROVIDING INFORMATION

Name	Information Provided	Title & Address	Phone

SECTION TWC: TAX DATA

1 PROPERTY TAX RATES AND REDUCTION FACTORS

A. COUNTY INSIDE MILLAGE _____
B. COUNTY OUTSIDE MILLAGE _____
C. COUNTY TAX REDUCTION FACTOR _____
D. SCHOOL INSIDE MILLAGE _____
E. SCHOOL OUTSIDE MILLAGE _____
F. SCHOOL TAX REDUCTION FACTOR _____
G. CITY INSIDE MILLAGE _____
H. CITY OUTSIDE MILLAGE _____
I. CITY TAX REDUCTION FACTOR _____

2 YEAR OF LAST APPRAISAL OR UPDATE _____

3 EXPECTED ANNUAL RATE OF CHANGE IN PROPERTY VALUES _____

4 SCHOOL DISTRICT TAX BASE - TAXABLE VALUES

A. REAL PROPERTY _____
B. TANGIBLE PERSONAL PROPERTY _____
C. TANGIBLE PERSONAL PUBLIC UTILITY PROPERTY _____
D. YEAR TO WHICH VALUATIONS APPLY _____

5 PERSON(S) PROVIDING INFORMATION

Name	Information Provided	Title & Address	Phone

SECTION THREE: COUNTY DATA

1 COUNTY PERMISSIVE SALES TAX RATE _____

2 STATE AND FEDERAL AID PER CAPITA _____

3 MISCELLANEOUS COUNTY REVENUE PER CAPITA _____

4 COUNTY OPERATING EXPENSES PER CAPITA

A. CURRENT OPERATING EXPENSES _____
B. EXPECTED RATE OF CHANGE _____

5 TOTAL ANNUAL CAPITAL COSTS

YEAR 1 _____
YEAR 2 _____
YEAR 3 _____
YEAR 4 _____
YEAR 5 _____
YEAR 6 _____
YEAR 7 _____
YEAR 8 _____
YEAR 9 _____
YEAR10 _____
YEAR11 _____
YEAR12 _____
YEAR13 _____
YEAR14 _____
YEAR15 _____
YEAR16 _____
YEAR17 _____
YEAR18 _____
YEAR19 _____
YEAR20 _____

6 PERSON(S) PROVIDING INFORMATION

Name	Information Provided	Title & Address	Phone

SECTION FOUR: SCHOOL DISTRICT DATA

1 ENROLLMENT

A. CURRENT AVERAGE DAILY ENROLLMENT _____
B. ANNUAL RATE OF CHANGE IN ENROLLMENT _____

2 TOTAL STATE BASIC AID IN YEAR BEFORE STUDY _____

3 EQUALIZED MILLAGE IN YEAR BEFORE STUDY _____

4 ANNUAL RATE OF CHANGE IN STATE SUPPORT _____

5 TOTAL CURRENT TRANSPORTATION AID _____

6 MISCELLANEOUS REVENUE PER PUPIL _____

7 SCHOOL OPERATING EXPENDITURES PER PUPIL

A. CURRENT _____
B. ANNUAL RATE OF CHANGE _____

8 ADDITIONAL CAPITAL COSTS

YEAR 1 _____
YEAR 2 _____
YEAR 3 _____
YEAR 4 _____
YEAR 5 _____
YEAR 6 _____
YEAR 7 _____
YEAR 8 _____
YEAR 9 _____
YEAR10 _____
YEAR11 _____
YEAR12 _____
YEAR13 _____
YEAR14 _____
YEAR15 _____
YEAR16 _____
YEAR17 _____
YEAR18 _____
YEAR19 _____
YEAR20 _____

9 PERSON(S) PROVIDING INFORMATION

Name	Information Provided	Title & Address	Phone

SECTION FIVE: MUNICIPAL DATA

1 MUNICIPAL POPULATION

A. CURRENT _____
B. ANNUAL RATE OF GROWTH _____

2 MUNICIPAL INCOME TAX

A. RATE _____
B. REVENUE FROM FIRM _____

3 YEARS OF TAX ABATEMENT _____

4 STATE AND FEDERAL AID PER CAPITA _____

5 MISCELLANEOUS REVENUE PER CAPITA _____

6 CURRENT ANNUAL OPERATION COST PER PERSON OF MUNICIPAL SERVICES

A. POLICE _____
B. FIRE _____
C. WATER _____
D. SEWER _____
E. STREETS _____
F. OTHER _____

7 CAPITAL INVESTMENTS BY MUNICIPALITY

YEAR 1 _____
YEAR 2 _____
YEAR 3 _____
YEAR 4 _____
YEAR 5 _____
YEAR 6 _____
YEAR 7 _____
YEAR 8 _____
YEAR 9 _____
YEAR10 _____
YEAR11 _____
YEAR12 _____
YEAR13 _____
YEAR14 _____
YEAR15 _____
YEAR16 _____
YEAR17 _____
YEAR18 _____
YEAR19 _____
YEAR20 _____

8 PERSON(S) PROVIDING INFORMATION

Name	Information Provided	Title & Address	Phone
_____	_____	_____	_____
_____	_____	_____	_____

Section VI: Other Data

The following data are used in all analyses unless an indepth case study is conducted. They are derived from previous research and are described in a related publication, "Economic Growth Impacts: A Technical Description of an Ohio Model for Nonmetropolitan Communities."

Item 1:	Length of Analysis	15
Item 2:	Discount Rate	.05
Item 3:	Rate of Inflation	.07
Item 4:	Ratio of Value Added to Sales	.20
Item 5:	Proportion of New Housing Outside Community Reinvestment Area	
	A. In the city	.90
	B. In the county	.95
Item 6:	Income Leakage Factor	
	A. In the city	.30
	B. In the county	.35
Item 7:	Rate of Depreciation	.04
Item 8:	Cumulative Probability of Plant Failure	
	Year 1	.014
	Year 2	.097
	Year 3	.225
	Year 4	.353
	Year 5	.481
	Year 6	.543
	Year 7	.604
	Year 8	.666
	Year 9	.698
	Year 10	.730
	Year 11	.750
	Year 12	.770
	Year 13	.790
	Year 14	.810
	Year 15	.830
	Year 16	.850
	Year 17	.870
	Year 18	.890
	Year 19	.910
	Year 20	.930

Section VII: Alternative Analyses and Policy Options

For each alternative analysis only change one key variable and its associated variables. If 2 or 3 unrelated variables are changed in one run, then any change in results cannot be traced to a specific input variable. Separate each set of changes with a line.

Variable Identification Number	Original Value of Variable	New Value of the Variable
Example: I-7b	50%	70%

APPENDIX C

Consumer Spending Survey

1. Please estimate the percentage of your annual family spendable income that goes into the following uses:

   a. _____% consumption (food, clothing, recreation, medical, transportation, and household items are examples)

   b. _____% savings (money deposited in a savings account or in certificates of deposit with banks or savings and loans, or used to buy stocks and bonds, or used to invest in property or kept at home)

   c. _____% housing (rent or mortgage payments)

   = 100% (a + b + c should add to 100%)

2. Of the consumption spending (in question 1a), please estimate the percentage you spend in each of the following areas:

   a. _____% in the city or village where you live

   b. _____% in the county in which you live but outside your city or village

   c. _____% outside the county where you live

   = 100% (a + b + c should add to 100%)

3. Of your savings (in question 1b), please estimate the percentage that you save, invest, or keep at home in each of the following areas:

   a. _____% in the city or village where you live

   b. _____% in the county in which you live but outside the city or village

   c. _____% outside the county where you live

   = 100% (a + b + c should add to 100%)

APPENDIX D

Data Used In Example

DATA USED IN ANALYSIS

SECTION ONE: FIRM AND EMPLOYMENT DATA

1	INDUSTRIAL CLASSIFICATION	
	A. TYPE OF BUSINESS	MACH TL ACCE
	B. SIC CODE	3545
2	LOCATION OF NEW FIRM	
	A. VILLAGE OR CITY	ATHENS
	B. SCHOOL DISTRICT	ATHENS CITY
	C. COUNTY	ATHENS
3	NEW JOBS CREATED	42
4	RESIDENTIAL LOCATION OF WORKERS (PERCENT OF TOTAL)	
	A. MUNICIPAL RESIDENTS	0.41
	B. REST OF COUNTY RESIDENTS	0.13
	C. IN-MIGRANTS TO THE CITY	0.13
	D. IN-MIGRANTS TO THE COUNTY	0.13
	E. COMMUTERS FROM OUTSIDE COUNTY	0.19
5	AVERAGE ANNUAL WAGES (BEFORE DEDUCTIONS)	
	A. FOR LOCAL EMPLOYEES	14493.
	B. FOR IN-MIGRANTS	21590.
	C. ANNUAL RATE OF CHANGE	0.090
6	NEW PLANT'S MARKET VALUE	
	A. BUILDINGS AND OTHER REAL PROPERTY	174923.
	B. TANGIBLE PERSONAL PROPERTY	960346.
7	PERCENTAGE OF WORKERS' INCOMES SPENT IN THE MUNICIPALITY AND COUNTY	
	A. BY MUNICIPAL RESIDENTS IN CITY	0.400
	B. BY MUNICIPAL RESIDENTS IN COUNTY	0.500
	C. BY REST OF COUNTY RESIDENTS IN CITY	0.300
	D. BY REST OF COUNTY RESIDENTS IN COUNTY	0.400
	E. BY COMMUTERS IN CITY	0.100
	F. BY COMMUTERS IN COUNTY	0.250
8	FAMILY SIZE PER EMPLOYEE	2.300
9	STUDENTS PER EMPLOYEE	0.300
10	RATIO OF HOME VALUES TO INCOME	2.000
11	RATIO OF NET INCOME TO GROSS INCOME	0.800

SECTION TWO: TAX DATA

1	PROPERTY TAX RATES AND REDUCTION FACTORS	
A.	COUNTY INSIDE MILLAGE	2.300
B.	COUNTY OUTSIDE MILLAGE	4.600
C.	COUNTY TAX REDUCTION FACTOR	0.233828
D.	SCHOOL INSIDE MILLAGE	4.000
E.	SCHOOL OUTSIDE MILLAGE	33.000
F.	SCHOOL TAX REDUCTION FACTOR	0.138715
G.	CITY INSIDE MILLAGE	2.600
H.	CITY OUTSIDE MILLAGE	0.0
I.	CITY TAX REDUCTION FACTOR	0.0
2	YEAR OF LAST APPRAISAL OR UPDATE	1978
3	EXPECTED ANNUAL RATE OF CHANGE IN PROPERTY VALUES	0.080
4	SCHOOL DISTRICT TAX BASE - TAXABLE VALUES	
A.	REAL PROPERTY	77536170.
B.	TANGIBLE PERSONAL PROPERTY	11664447.
C.	TANGIBLE PERSONAL PUBLIC UTILITY PROPERTY	16788260.
D.	YEAR TO WHICH VALUATIONS APPLY	1978

SECTION THREE: COUNTY DATA

1	COUNTY PERMISSIVE SALES TAX RATE	0.0
2	STATE AND FEDERAL AID PER CAPITA	29.00
3	MISCELLANEOUS COUNTY REVENUE PER CAPITA	6.09
4	COUNTY OPERATING EXPENSES PER CAPITA	
A.	CURRENT OPERATING EXPENSES	28.88
B.	EXPECTED RATE OF CHANGE	0.070
5	TOTAL ANNUAL CAPITAL COSTS	
	YEAR 1	0.0
	YEAR 2	0.0
	YEAR 3	0.0
	YEAR 4	0.0
	YEAR 5	0.0
	YEAR 6	0.0
	YEAR 7	0.0
	YEAR 8	0.0
	YEAR 9	0.0
	YEAR10	0.0
	YEAR11	0.0
	YEAR12	0.0
	YEAR13	0.0
	YEAR14	0.0
	YEAR15	0.0
	YEAR16	0.0
	YEAR17	0.0
	YEAR18	0.0
	YEAR19	0.0
	YEAR20	0.0

SECTION FOUR: SCHOOL DISTRICT DATA

1	ENROLLMENT	
	A. CURRENT AVERAGE DAILY ENROLLMENT	3530
	B. ANNUAL RATE OF CHANGE IN ENROLLMENT	0.0
2	TOTAL STATE BASIC AID IN YEAR BEFORE STUDY	1941093.
3	EQUALIZED MILLAGE IN YEAR BEFORE STUDY	27.000
4	ANNUAL RATE OF CHANGE IN STATE SUPPORT	0.070
5	TOTAL CURRENT TRANSPORTATION AID	0.
6	MISCELLANEOUS REVENUE PER PUPIL	73.62
7	SCHOOL OPERATING EXPENDITURES PER PUPIL	
	A. CURRENT	1217.00
	B. ANNUAL RATE OF CHANGE	0.080
8	ADDITIONAL CAPITAL COSTS	
	YEAR 1	0.0
	YEAR 2	0.0
	YEAR 3	0.0
	YEAR 4	0.0
	YEAR 5	0.0
	YEAR 6	0.0
	YEAR 7	0.0
	YEAR 8	0.0
	YEAR 9	0.0
	YEAR10	0.0
	YEAR11	0.0
	YEAR12	0.0
	YEAR13	0.0
	YEAR14	0.0
	YEAR15	0.0
	YEAR16	0.0
	YEAR17	0.0
	YEAR18	0.0
	YEAR19	0.0
	YEAR20	0.0

SECTION FIVE: MUNICIPAL DATA

1	MUNICIPAL POPULATION	
	A. CURRENT	16616
	B. ANNUAL RATE OF GROWTH	0.0
2	MUNICIPAL INCOME TAX	
	A. RATE	0.010
	B. REVENUE FROM FIRM	0.0
3	YEARS OF TAX ABATEMENT	0
4	STATE AND FEDERAL AID PER CAPITA	39.50
5	MISCELLANEOUS REVENUE PER CAPITA	10.39
6	CURRENT ANNUAL OPERATION COST PER PERSON OF MUNICIPAL SERVICES	
	A. POLICE	21.70
	B. FIRE	19.24
	C. WATER	0.0
	D. SEWER	0.0
	E. STREETS	6.72
	F. OTHER	6.24
7	CAPITAL INVESTMENTS BY MUNICIPALITY	
	YEAR 1	0.0
	YEAR 2	0.0
	YEAR 3	0.0
	YEAR 4	0.0
	YEAR 5	0.0
	YEAR 6	0.0
	YEAR 7	0.0
	YEAR 8	0.0
	YEAR 9	0.0
	YEAR10	0.0
	YEAR11	0.0
	YEAR12	0.0
	YEAR13	0.0
	YEAR14	0.0
	YEAR15	0.0
	YEAR16	0.0
	YEAR17	0.0
	YEAR18	0.0
	YEAR19	0.0
	YEAR20	0.0

SECTION SIX: OTHER DATA

1	LENGTH OF ANALYSIS	10.
2	DISCOUNT RATE	0.100
3	RATE OF INFLATION	0.070
4	RATIO OF VALUE ADDED TO SALES SERVICE SECTOR	0.200
5	PROPORTION OF NEW HOUSING OUTSIDE COMMUNITY REINVESTMENT AREA	
	A. IN THE CITY	0.900
	B. IN THE COUNTY	0.950
6	INCOME LEAKAGE FACTOR	
	A. IN THE CITY	0.30
	B. IN THE COUNTY	0.35
7	RATE OF DEPRECIATION	0.04
8	CUMULATIVE PROBABILITY OF PLANT FAILURE	
	YEAR 1	0.014
	YEAR 2	0.097
	YEAR 3	0.225
	YEAR 4	0.353
	YEAR 5	0.481
	YEAR 6	0.543
	YEAR 7	0.605
	YEAR 8	0.667
	YEAR 9	0.699
	YEAR10	0.731

REFERENCES

Morse, George, "Extension Program Suggestions for the Ohio Economic Growth Impact Model," Department of Agricultural Economics and Rural Sociology, the Ohio Agricultural Research and Development Center and the Ohio State University, ESO 741, 1980.

Morse, George, "Use of Growth Impact Models in Economically Depressed Regions," Department of Agricultural Economics and Rural Sociology, the Ohio Agricultural Research and Development Center and the Ohio State University, ESO 742, 1980.

Morse, George W. and John David Gerard, "Economic Growth Impacts: A Technical Description of an Ohio Model for Rural Communities," Research Bulletin, Department of Agricultural Economics and Rural Sociology, The Ohio Agricultural Research and Development Center and the Ohio State University, ESO 743, 1980.

Morse, George W. and Leroy J. Hushak, "Income and Fiscal Impacts of Manufacturing Plants in Southeast Ohio," Ohio Agricultural Research and Development Center, Research Bulletin 1108, 1979.

Burchell, Robert W. and David Listokin, The Fiscal Impact Handbook: Estimating Local Costs and Revenues of Land Development, New Brunswick, N.J.: Center for Urban Policy Research, 1978.